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ABSTRACT

Findings from the National Household Survey on Drug Abuse (NHSDA) show a substantial decrease in alcohol use by youth during the past decade. Yet despite these trends, an estimated 1 in 5 teenagers were current alcohol drinkers and 1 in 13 were binge alcohol drinkers. This report provides data showing the relationship between emotional state, health, and behaviors of adolescents who use alcohol. Data from the 1994, 1995, and 1996 NHSDA surveys were used for this study, comprised of 17,821 respondents between the ages of 12 and 17. The data showed that there is a strong positive relationship between many reported problem behaviors and alcohol use among youths. Some of the relationships may have been due to confounding factors such as age; gender; race/ethnicity; family structure; income; mobility; and marijuana use in the past month. Even after controlling for these variables, there was a relationship between past month alcohol use and emotional and behavioral problems. It is not possible to determine whether the observed associations between alcohol use and behaviors can be explained by some other related behavioral or environmental factor. Other longitudinal studies are needed to determine if symptoms and behaviors preceded the alcohol use. (Contains 14 tables and 24 references.) (JDM)

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Patterns of Alcohol Use Among Adolescents and Associations with Emotional and Behavioral Problems

By Janet C. Greenblatt

Introduction

Findings from the National Household Survey on Drug Abuse (NHSDA), sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), Department of Health and Human Services, show a substantial decrease in alcohol use by youths age 12 to 17 during the past decade. Since the late 1980's, the rate of past month alcohol use among youths has declined from around 41 percent in 1985 to 19 percent in 1998. The rates for binge alcohol use (drinking 5 or more drinks on at least one occasion in the past month) have also declined from 22 percent in 1985 to 8 percent in 1998. Between 1995 and 1998, the rates of past month alcohol use and binge alcohol use among 12-17 year olds remained relatively stable. Yet despite these trends, it is important to note that in 1998, an estimated one in five teenagers (4.3 million) were current alcohol drinkers and one in thirteen teenagers (1.7 million) were binge alcohol drinkers (SAMHSA, 1999).

Information from the 1998 NHSDA shows that the level of alcohol use is strongly associated with illicit drug and cigarette use. Around 40 percent of current alcohol users age 12 to 17 also used an illicit drug in the past month, while 58 percent of binge drinkers and 69 percent of heavy drinkers age 12 to 17 used an illicit drug in the past month. The rate of current cigarette use also increased with the level of current alcohol use among adolescents (53% of current alcohol users also smoked cigarettes as did 71% of binge alcohol users and 77% of heavy alcohol users).

The mean age of first use of alcohol has been decreasing over time, declining from 18 in 1968 to 16 in 1996 (the latest year for which this measure is available). Meanwhile the age specific rate of first use among 12 to 17 year old adolescents has doubled from 76 per 1000 potential new users in 1968 to 159 per 1000 potential new users in1996.

In 1998, about two-thirds of youths reported great risk of harm in having four or five drinks nearly every day (66 percent). Fewer than half reported great risk of harm in having five or more drinks once or twice a week, and this proportion has been declining (47 percent in 1998, down from 54 percent in 1994) despite the fact that the risks associated with adolescent alcohol use have been well documented:

- Of the nearly 8,000 drivers ages 15-20 involved in fatal motor vehicle crashes in 1996, 21.2 percent had been drinking, and 13.8 percent were legally intoxicated (NHTSA 1998).

- People who begin drinking before age 15 are four times as likely to develop alcohol dependence and more than twice as likely to develop alcohol abuse than those who delay drinking until age 21 (Grant and Dawson 1997).
- Surveys of adolescents suggest that alcohol use is associated with risky sexual behavior and increased vulnerability to coercive sexual activity.

  - College binge drinkers were 2.3 times more likely than non-bingers to experience forced sexual touching and 2.7 times more likely to have unwanted sexual intercourse (Presley, Meilman, et. al.)

  - A study of 371 adolescent drinkers found that those with alcohol disorders are more likely than other drinkers to be sexually active, to have a greater number of partners, and to initiate sexual activity at younger ages (Bailey, Pollock, et. al.)

  - Survey results indicate that alcohol use is significantly associated with both risky behaviors and sexual victimization (Windle).

- A survey focusing on alcohol-related problems of high school seniors and dropouts found that in 1996, about 80 percent reported either getting drunk, engaging in binge drinking, or drinking and driving. More than half said that drinking had caused them to feel sick, miss school or work, get arrested, or have a car crash (Ellickson).

This report provides data showing the relationship between the emotional state, health and behaviors and alcohol use. The data cannot be used to prove a causal relationship because they are not longitudinal, but examining correlations of frequency of alcohol use with problems provides some evidence that an increase in the amount consumed is associated with problem behaviors.

Methods

Data Source

Data from the 1994, 1995, and 1996 NHSDA are used for this study. Conducted by SAMHSA, the NHSDA is the primary source of estimates of the prevalence, consequences, and patterns of drug use and abuse in the United States population age 12 and older. The survey collects information from a representative sample of persons living in the U.S. The universe includes residents of noninstitutional group quarters such as shelters, rooming houses, dormitories and residents of civilian housing on military bases. Persons excluded from the universe include the homeless not found in shelters, residents of institutional quarters, such as jails and hospitals, and active military personnel. The survey employs a multistage area probability sample design that includes over-sampling of youths, African-Americans, and Hispanics (SAMHSA, 1998). The three years of survey information provides 17,821 respondents between the ages of 12 and 17. The household screening completion rate for the 1994-6

surveys was 94 percent and the survey response rate was approximately 83 percent for those age 12 to 17; three-fourths of these interviews were completed in complete privacy or with minor distractions.

The household interview takes about an hour to complete. It includes a combination of interviewer-administered and self-administered questions. The answers to sensitive questions (including those on alcohol use) are recorded by the respondent on separate answer sheets, not seen by the interviewer. Because NHSDA data are based on self-reports of drug use, the information depends on respondents' truthfulness and memory. Although the NHSDA procedures are designed to encourage honesty and recall, some under reporting occurs (Harrison and Hughes). While the methodology used in the NHSDA has been shown to produce more valid results than other self-report methods such as interviews by telephone (Turner et al. 1992), there are differences between the NHSDA results and results based on classroom surveys which may have less under-reporting (Gfroerer, Wright, and Kopstein, 1997).

In 1994, SAMHSA began collecting mental health data using a youth mental health module adopted from the Youth Self-Report (YSR) by Thomas M. Achenbach and colleagues (1991a). The module contained 118 items, 81 of which are combined to create 8 psycho-social categories: depression, anxiety, social withdrawal, somatic complains, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. Youths are asked to indicate if each item is: 1) not true 2) somewhat or sometimes true or 3) very or often true for them for the past 6 months. Responses to the YSR have been shown to distinguish adolescents typically seen in clinical settings for counseling or psychotherapy from those seldom referred for treatment.

In 1995, adolescents were asked if they had done certain activities that may be against the law such as taking something from a store without paying for it, purposely damaging or destroying property that did not belong to them, hitting someone or getting into a physical fight, or selling any illegal drugs. In 1995 and 1996, adolescents were also asked if, during the past year, they had ever been arrested and booked for breaking the law, were on probation, or drove under the influence of alcohol or illegal drugs.

Definitions and Statistical Analysis

For the purpose of this analysis, adolescents age 12 to 17 were divided into 4 groups based on their pattern of alcohol consumption during the prior 30 days: heavy, binge, light, and non-drinkers. **Heavy drinkers** were defined as those who consumed 5 or more drinks per occasion on 5 or more days; **binge drinkers** were those who consumed 5 or more drinks on at least one, but no more than 4 occasions; **light drinkers** were those who consumed at least 1, but fewer than 5 drinks on any occasion; and **non-drinkers** were those who did not drink alcohol in the previous 30 days.

This report presents those findings of statistical significance. Differences were tested for statistical significance using the computer program SUDAAN (Shah et al.1995) which takes into account

the complex sample design of the NHSDA. Differences are deemed statistically significant at the .05 level or lower. That is, an observed estimate is designated as Astatistically significantly different@ from another estimate if the observed sample difference is likely to occur fewer than 5 times in 100 by chance alone.

Logistic regression analyses were conducted using a weighted maximum likelihood estimation method implemented by the computer program SUDAAN (Shah et al. 1995). The multivariate logistic regression models were used to determine if relationships between emotional and behavioral problems and alcohol use exist after controlling for potential confounding factors. A model was run for each of the 8 psycho-social categories as the dependent variable recoded as 1 if the respondent scored above a pre-specified cutoff point. The independent variables in the models, in addition to the 4-level alcohol use variable, were age, race/ethnicity (white non-Hispanic, black non-Hispanic, Hispanic, other), population density (metropolitan area of one million or more, metropolitan area of less than one million, non-metropolitan area), region (Northeast, North Central, South, and West), family income ($0-8 999, $9-19 999, $20-39 999, $40-74 999, and $75 000 or more), family structure (2-parent vs. other), relocation (having moved in the past year vs. no moves) and past month marijuana use (user versus nonuser).

Results

Characteristics of Past Month Alcohol Drinkers

The major demographic characteristics of past month alcohol drinkers (Tables 1 through 4) are as follows:

- 4 percent of 12 year old, 28 percent of 16 year old, and 35 percent of 17 year old adolescents were current drinkers (Table 1).

- Of those who were current alcohol drinkers (Table 2), the majority of 12 to 16 year old adolescents were light drinkers, drinking fewer than 5 drinks on any one occasion.

- Among 17 year old adolescents who used alcohol in the past month (Table 2), about half were binge drinkers or heavy drinkers (32% and 18% respectively).

- About 80 percent of binge and heavy drinkers were white, while only 67% of non-drinkers were white. About 13 percent of non-drinkers were black, compared to only 7% of binge drinkers and 5% of heavy drinkers (Table 3).

- Sixty-nine percent of heavy alcohol drinkers were male, while fewer than half of those who were light drinkers were male (Table 3).

- Nearly one third of heavy drinkers (32 percent) lived in non-metropolitan areas, while only 23 percent of light drinkers lived in non-metropolitan areas (Table 3).

- Heavy drinkers were more likely to live in the south (40 percent) than were binge drinkers (31 percent) (Table 3).

- Adolescent binge and heavy drinkers were more likely to have moved 2 or more times in the past year (4 percent and 6 percent, respectively) than those who did not drink in the past month or were light drinkers (1.3 and 2.5% respectively) (Table 3).

- Heavy drinkers were 16 times more likely, binge drinkers were 13 times more likely, and light drinkers were nearly 8 times more likely than non-drinkers to have used an illicit drug in the past month (Table 4).

    - An estimated 53 percent of heavy drinkers used an illicit drug in the past month as did 43 percent of binge drinkers.

    - The drug used most often by current drinkers was marijuana (used by 46% of heavy drinkers, 39% of binge drinkers and 20% of light drinkers.

    - Hallucinogens and inhalants were used by 16% and 13% of heavy alcohol drinkers, respectively.

Problem Behaviors Associated With Alcohol Use

Heavy and binge alcohol drinkers age 12 to 17, compared to those who did not drink alcohol in the past month (non-drinkers), were:

- twice as likely to say their school work is poor (49.2% for heavy drinkers, 44.7% for binge drinkers, and 27.5% for non-drinkers) (Table 10),

- 4 to 6 times more likely to say they cut classes or skipped school (54.7% for heavy drinkers, 40.8% for binge drinkers, and 9.9% for non-drinkers) (Table 11),

- 3 times more likely to say they deliberately try to hurt or kill themselves (14.9%, 11.7% and 4.4%) and twice as likely to say they think about killing themselves (19.3%, 18.6% and 7.9%) (Table 7).

Aggressive and Delinquent Behaviors

Heavy and binge alcohol drinkers were more likely than light and non-drinkers to exhibit many aggressive and delinquent behaviors. Specifically, heavy and binge drinkers, as compared with non-drinkers were:

- 3 to 5 times more likely to say they ran away from home (18.1%, 9.7% and 3.7%) (Table 11),
- 3 to 4 times more likely to say they steal from places other than home (24.3%, 18.3% and 6.1%) (Table 11),
- 2 to 3 times more likely to say they destroy things that belong to others (18.5%, 11.4% and 6.7%), that they threaten to hurt people (38.8%, 25.5%, and 12.3%), and that they physically attack people (21.5%, 14.8%, and 6.5%) (Table 12).

Past Year Criminal Behaviors

Adolescents who used <u>any alcohol</u> in the past month (including heavy and binge drinkers) were more likely than non-drinkers to be involved in criminal behaviors in the past year. In general, as seen in Table 13, the heavier the alcohol use, the more likely the adolescent was to be involved in criminal behaviors. For example in the past year,

- Heavy alcohol drinkers were 3 times more likely and binge and light drinkers were 2 times more likely than non-drinkers to have gotten into a physical fight (46.5%, 37.3%, 29.5%, 15.2%, respectively).
- Heavy and binge alcohol drinkers were 4 times more likely and light drinkers were 3 times more likely than non-drinkers to say they took something from a store without paying for it (33.2%, 27.3%, 20.9%, and 7.7%, respectively).
- Heavy drinkers were the most likely to report having been on probation in the past year (19.0% for heavy, 6.8% for binge, 4.9% for light, and 1.5% for non-drinkers) and the most likely to report ever having been arrested and booked for breaking the law (27.7% for heavy, 17.3% for binge, 9.9% for light, and 3.7% for non-drinkers).
- Heavy drinkers were 5 times more likely and binge drinkers were nearly 3 times more likely than light drinkers to say they drove under the influence of alcohol (32.0%, 16.2% and 6.3%, respectively).
- Heavy drinkers were 4 times more likely and binge drinkers were 2 times more likely than light drinkers to say they drove under the influence of drugs in the past year (18.4%, 12.4% and 5.2%, respectively).

Correlation Between Emotional and Behavioral Problems and Patterns of Alcohol Use

Although adolescents who drank alcohol in the past month were very different from those who did not drink alcohol, it is surprising to note the lack of statistically significant differences on many of the items measured among heavy, binge, and light alcohol drinkers.

For example, there were no differences among the three groups in reporting withdrawal (such as being unhappy, sad, or depressed) or somatic (such as feeling overtired, having headaches or feeling nauseous or throwing up) complaints. Nor were there any differences in reported social problems (such as not getting along with other kids), thought problems (not being able to get their mind off certain thoughts or doing things others think are strange), attention problems (having trouble concentrating, saying their school work is poor, or saying they act without stopping to think), or symptoms of anxiety or depression (such as deliberately trying to hurt or kill myself or feeling that others are out to get me) among the three groups of alcohol drinkers.

The only statistically significant differences among the three groups of current alcohol drinkers appeared in the categories of aggressive, delinquent, and criminal behaviors.

- Heavy drinkers were more likely than binge drinkers, and binge drinkers were more likely than light drinkers to say they cut classes or skip school (54.7%, 40.8%, and 29.3%) (Table 11).

- Heavy and binge drinkers were more likely than light drinkers to say they disobey at school (49.6%, 48.9%, and 39.4% respectively) (Table 12).

- Heavy drinkers were more likely than binge or light drinkers to say that they get in many fights (35.0%, 24.5%, and 19.9%), threaten to hurt people (38.8%, 25.5%, and 22.5%), and run away from home (18.1%, 9.7%, and 8.4%) (Table 12).

- Heavy drinkers were more likely than binge or light drinkers to report that, in the past year, they got into a physical fight (46.5%, 37.3%, and 29.5%), they purposely damaged or destroyed property that did not belong to them (32.8%, 19.5%, and 16.2%), they were on probation (19.0%, 6.8%, and 4.9%) (Table 13).

- Heavy and binge drinkers were more likely than light drinkers to report they had ever been arrested and booked for breaking the law (27.7%, 17.3%, and 9.9%) and that they had driven under the influence of drugs (18.4%, 12.4%, and 5.2%) or sold illegal drugs (21.7%, 10.6%, and 3.8%) in the past year (Table 13).

- Heavy drinkers were more likely than binge drinkers, and binge drinkers were more likely than light drinkers to say they drove under the influence of alcohol in the past year (32.0%, 16.2%, and 6.3%) (Table 13).

Adolescents= Scores and Substance Use

The results presented above could be affected by other variables, such as age and income level, that might help to account for the observed associations. For example, all heavy alcohol drinkers could be illicit drug users and the drug use mainly responsible for the observed association. Therefore, logistic regression analyses were conducted to determine if the relationship between emotional and behavioral problems and alcohol use exist after controlling for potential confounding factors. A model was run for each of the 8 psycho-social categories as the dependent variable and for the 8 criminal behavior variables. The independent variables in the models, in addition to the 4-level alcohol use variable, were age, race/ethnicity, population density, region, family income, family structure, relocation, and past month marijuana use. Even after controlling for these variables, as seen in Table 14, a significant relationship between drinking alcohol and some behaviors was found:

- Heavy alcohol drinkers were 5 times as likely, binge nearly 4 times as likely, and light nearly 3 times as likely as non-drinkers to be among those with clinical-range delinquent behavior scores.

- Heavy alcohol drinkers were 4 times as likely, binge and light drinkers were 3 times as likely as non-drinkers to be among those with clinical-range aggressive behavior scores.

- Heavy alcohol drinkers were 4 times as likely as non-drinkers to be among those with clinical-range withdrawal complaints.

- Heavy alcohol drinkers were 3 times as likely as non-drinkers to be among those with clinical-range attention and thought problems.

- Binge and light alcohol drinkers were twice as likely as non-drinkers to be among those with clinical-range social problems.

- Heavy and binge alcohol drinkers were 2 to 4 times as likely than non-drinkers to say they had ever been arrested and booked or were on probation in the past year, they drove under the influence of illegal drugs, or they purposely damaged or destroyed property that did not belong to them.

- Past month alcohol drinkers were about twice as likely as non-drinkers to say they took something from a store without paying and they got into a physical fight in the past year.

- Heavy alcohol drinkers were nearly 5 times as likely as light drinkers and 2.4 times as likely as binge drinkers to say they drove under the influence of alcohol.

Discussion

These data show that there is a strong positive relationship between many reported problem behaviors and alcohol use among youths. Further, for some items measured, the more frequent the use, the more likely the youths were to report problem behaviors, especially aggressive and delinquent behaviors. Although causal conclusions about the relationship between alcohol use and these problems cannot be drawn from the NHSDA data alone, these data provide a useful complement to other studies showing harmful consequences associated with alcohol use.

An interesting finding was that there seems to be no dose/response relationship among heavy, binge, or light drinkers for many items. The only relationship found between the pattern of alcohol consumption and reported behaviors occurred in the aggressive, delinquent and criminal behaviors categories. In particular, heavy drinkers were more likely than those who drank less often to be involved in criminal behaviors, aggressive behaviors (such as threatening to hurt people, physically attacking people, and destroying property), and a wide range of delinquent behaviors (such as running away from home and cutting classes or school).

Some of the relationships shown may have been due to confounding factors such as age, gender, race/ethnicity, family structure, income, mobility, and past month marijuana use. Logistic regression analyses provided evidence that, even after controlling for these variables, there was a relationship between past month alcohol use and emotional and behavioral problems. The relationships were particularly strong among heavy and binge alcohol use and delinquent, aggressive, and criminal behaviors.

It is not possible to determine from these data whether the observed associations between alcohol use and behaviors can be explained by some other related behavioral or environmental factors. It is also not possible to determine whether these behaviors preceded youths= alcohol use or the extent to which youths may be using alcohol in an attempt to prevent or alleviate symptoms (i.e., Aself-medicating@ for symptoms such as depression). Longitudinal studies are needed to determine if the symptoms and behaviors preceded the alcohol use.

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Table 1: **Percent Distribution of Respondents Age 12 to 17 by Pattern of Alcohol Use in Past Month and Age, 1994-6**

Age	Percent Weighted N Sample Size	Pattern of Alcohol Use Heavy	Binge	Light	No Use
12	100% 3,377,100 2,136	0.2	0.2	3.2	96.4
13	100% 3,812,300 2,387	0.6	1.8	5.7	92
14	100% 3,863,900 2,321	2.0	3.2	9.2	85.7
15	100% 3,656,900 2,256	3.1	5.7	14.0	77.2
16	100% 3,625,700 2,280	4.5	7.7	15.5	72.2
17	100% 3,275,100 2,066	6.5	11.6	17.6	64.7
Total 12-17	100% 17,627,000 17,821	2.8	4.9	10.8	81.6

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 2: Percent Distribution of Current Alcohol Users Age 12-17 by Pattern of Use and Age, 1994-6

Age	Total	Pattern of Alcohol Use Heavy	Binge	Light
12	100%	6.2	5.0	88.9
13	100%	7.0	22.3	70.7
14	100%	13.7	22.1	64.2
15	100%	13.8	24.9	61.3
16	100%	16.2	27.8	56.0
17	100%	18.1	32.4	49.4
Total	100%	14.9	26.7	58.4

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

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Table 3: Frequency Distribution of Respondents 12-17 by Pattern of Alcohol Use and by Selected Demographic Characteristics: 1994-6

	Pattern of Alcohol Use			
	Heavy	**Binge**	**Light**	**No Use**
Estimated Number (Sample Size)	594,000 (813)	1,062,000 (1,231)	2,328,000 (2,398)	17,627,000 (13,379)
	100.0%	100.0%	100.0%	100.0%
Age				
12-13	4.8	7.0	13.9	38.4
14-15	32.0	31.1	37.1	34.8
16-17	63.2	62.0	49.0	26.8
Race				
White	78.3	80.5	72.8	66.6
Black	6.9	5.9	13.2	15.2
Hispanic	11.4	11.3	11.6	12.9
Other	3.5	2.4	2.4	5.3
Gender				
Male	68.6	56.2	47.5	50.7
Female	31.4	43.8	52.5	49.3
Population Density				
Metro Area 1 Million or more	36.8	38.3	41.7	41.3
Metro Area < 1 Million	31.5	35.3	35.3	34.5
Non Metro Area	31.8	26.4	23	24.2

Table 3 continued: **Frequency Distribution of Respondents 12-17 by Pattern of Alcohol Use and by Selected Demographic Characteristics: 1994-6**

	Pattern of Alcohol Use			
	Heavy	Binge	Light	No Use
	100.0%	100.0%	100.0%	100.0%
Region				
Northeast	12.6	16.5	16.3	17.5
North Central	28.4	25.9	29.2	25.2
South	40.2	31.4	34.0	34.5
West	18.8	26.3	20.6	22.8
Family Income				
$0-$8,999	8.1	6.4	6.7	7.4
$9-19,999	15.0	13.7	14.0	17.4
$20-39,999	33.7	28.9	29.8	30.2
$40-74,999	27.7	36.5	36.3	32.2
$75,000+	15.5	14.5	13.1	12.8
Moves in past year				
None	79.2	75.3	81.9	82.8
1	15.0	20.5	15.5	15.9
2 or more	5.8	4.2	2.5	1.3
Family Structure				
2-parent	56.3	59.9	61.0	66.9
Other	43.7	40.1	39.0	33.1

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

ble 4: Percentage of Adolescent Respondents Reporting Past Month Use of Illicit Drugs and Cigarettes by Pattern of Past Month Alcohol Use, 1994-6

	Pattern of Alcohol Use			
	Heavy	Binge	Light	No Use
Illicit Drug Used:				
Cigarettes	76.0	63.6	44.1	10.5
Marijuana	46.4	38.6	19.5	1.9
Hallucinogens	15.9	9.4	4.0	0.4
Inhalants	12.9	9.6	4.2	0.7
Cocaine	6.6	3.9	0.7	0.1
Analgesics	6.4	5.1	2.9	0.7
Stimulants	4.7	2.7	0.8	0.2
Any Illicit Drug	52.7	43.2	25.6	3.3

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 5: Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Withdrawal Complaints in the Past 6 Months by Pattern of Alcohol Use, 1994-6

WITHDRAWAL COMPLAINTS	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
(Sample Size)	Heavy (813)	Binge (1,231)	Light (2,398)	No Use (13,379)
Would rather be alone than with others	31.7(26.3-38.4)	35.3(30.9-40.2)	32.5(29.6-35.5)	29.0(28.0-30.1)
I refuse to talk	22.4(17.7-28.4)	17.7(14.5-21.7)	19.6(17.2-22.3)	15.5(14.7-16.4)
I am secretive or keep things to myself	51.0(45.0-57.8)	55.7(51.1-60.7)	54.7(51.6-57.9)	48.1(46.9-49.2)
I am shy	36.7(30.9-43.4)	37.7(33.3-42.6)	45.5(42.4-48.8)	49.5(48.4-50.7)
I don=t have much energy	31.2(25.8-37.8)	33.2(29.1-38.0)	31.2(28.4-34.2)	24.1(23.2-25.2)
I keep from getting involved with others	35.3(29.8-41.7)	39.7(35.2-44.8)	39.4(36.4-42.6)	36.5(35.4-37.6)
I am unhappy, sad, or depressed	34.6(28.9-41.3)	30.5(26.4-35.3)	31.8(28.9-34.9)	21.7(20.7-22.6)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 6: **Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Somatic Complaints in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6**

SOMATIC COMPLAINTS	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
	Heavy	Binge	Light	No Use
I feel dizzy	26.9(21.5-33.6)	23.7(19.8-28.4)	19.8(17.4-22.6)	15.1(14.3-16.0)
I feel overtired	42.4(36.5-49.2)	44.5(40.0-49.6)	45.0(42.0-48.3)	33.2(32.1-34.3)
I have aches and pains	35.8(30.2-42.5)	36.9(32.5-41.7)	35.6(32.7-38.8)	27.3(26.3-28.4)
I have headaches	49.2(43.2-56.0)	52.7(48.1-57.7)	55.5(52.4-58.7)	47.1(46.0-48.3)
I feel nausea or sick	27.1(21.8-33.6)	32.8(28.6-37.6)	30.0(27.2-33.0)	22.2(21.3-23.2)
I have problems with my eyes	31.4(25.8-38.2)	34.3(30.0-39.3)	27.1(24.4-30.0)	22.6(21.7-23.6)
I have rashes or other skin problems	16.2(11.8-22.2)	15.5(12.6-19.2)	16.2(14.1-18.7)	13.5(12.7-14.3)
I have stomach aches or cramps	32.9(27.4-39.5)	38.5(34.1-43.5)	40.2(37.2-43.4)	33.2(32.1-34.3)
I have trouble with vomiting/throwing up	14.8(10.8-20.3)	14.0(11.0-17.9)	12.8(10.8-15.1)	9.6(8.9-10.3)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 7: Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Anxiety/Depression in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6

ANXIETY/DEPRESSION	Pattern of Alcohol Use/Percent saying "somewhat, very, often true"			
	Heavy	Binge	Light	No Use
I feel lonely	39.6(33.8-46.5)	44.8(40.2-49.8)	41.6(38.6-44.9)	31.8(30.8-33.0)
I cry a lot	24.9(19.9-31.2)	26.1(22.2-30.6)	28.1(25.5-31.1)	21.8(20.8-22.7)
I deliberately try to hurt or kill myself.	14.9(10.8-20.6)	11.7 (9.1-15.2)	10.7 (8.9-12.9)	4.4 (3.9-4.9)
I am afraid I might think/do something bad.	19.7(15.2-25.5)	23.1(19.5-27.4)	22.7(20.2-25.5)	22.6(21.6-23.6)
I feel that I have to be perfect.	34.6(29.0-41.4)	32.1(28.0-36.8)	29.8(27.0-32.9)	32.2(31.1-33.3)
I feel that no one loves me.	20.9(16.2-27.0)	20.2(16.7-24.4)	20.7(18.2-23.5)	12.1(11.4-12.9)
I feel that others are out to get me.	24.6(19.7-30.9)	21.6(18.0-25.9)	20.4(18.0-23.2)	13.4(12.6-14.2)
I feel worthless or inferior.	18.1(13.6-24.1)	16.7(13.5-20.6)	16.5(14.2-19.1)	10.4 (9.7-11.1)
I am nervous or tense.	46.6(40.7-53.5)	44.0(39.5-49.1)	44.6(41.5-47.8)	38.7(37.6-39.9)
I am too fearful or anxious.	26.6(21.2-33.4)	19.3(15.9-23.5)	25.1(22.4-28.0)	20.0(19.1-20.9)
I feel too guilty.	19.7(15.0-25.7)	18.0(14.9-21.9)	16.8(14.6-19.4)	13.8(13.0-14.6)
I am self-conscious/easily embarrassed.	33.6(28.2-40.1)	40.6(36.1-45.6)	46.9(43.9-50.2)	40.8(39.7-41.9)
I am suspicious.	55.3(49.3-62.0)	50.8(46.2-55.9)	47.8(44.7-51.0)	42.5(41.3-43.6)
I think about killing myself.	19.3(14.7-25.4)	18.6(15.2-22.9)	18.2(15.9-20.9)	7.9 (7.3-8.5)
I feel unhappy, sad or depressed.	34.6(28.9-41.3)	30.5(26.4-35.3)	31.8(28.9-34.9)	21.7(20.7-22.6)
I worry a lot.	48.6(42.6-55.4)	46.1(41.5-51.1)	47.3(44.3-50.6)	42.4(41.2-43.5)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 8: **Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Social Problems in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6**

SOCIAL PROBLEMS	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
	Heavy	Binge	Light	No Use
I act too young for my age.	27.6(22.5-33.7)	27.0(23.1-31.6)	32.9(30.0-36.0)	36.6(35.4-37.7)
I am too dependent on adults.	32.0(26.5-38.5)	30.6(26.6-35.1)	33.6(30.8-36.8)	33.7(32.6-34.8)
I dont get along with other kids.	23.5(18.7-29.4)	24.9(21.0-29.5)	23.1(20.6-25.9)	18.4(17.5-19.3)
I get teased a lot.	21.4(16.6-27.6)	16.2(13.1-20.1)	23.2(20.7-26.1)	24.1(23.1-25.1)
I am not liked by other kids.	17.2(13.1-22.5)	15.7(12.5-19.6)	19.4(17.0-22.1)	17.8(17.0-18.7)
I am poorly coordinated or clumsy.	23.1(18.3-29.2)	22.7(19.0-27.2)	22.6(20.0-25.5)	18.8(17.9-19.7)
I prefer younger kids as friends.	16.4(12.1-22.2)	15.4(12.3-19.3)	19.0(16.6-21.7)	22.0(21.0-22.9)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 9: **Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Thought Problems in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6**

THOUGHT PROBLEMS	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
	Heavy	Binge	Light	No Use
I can't get my mind off certain thoughts.	74.7(69.5-80.4)	79.2(75.3-83.2)	76.7(74.1-79.4)	62.5(61.4-63.6)
I hear things that others don't hear.	19.4(14.8-25.4)	11.6 (9.1-14.7)	12.5(10.6-14.8)	9.4 (8.8-10.1)
I repeat certain actions over and over.	34.0(28.5-40.7)	31.9(27.7-36.7)	31.8(29.0-35.0)	24.8(23.8-25.8)
I see things other people think are not there.	11.2 (7.8-16.2)	9.8 (7.4-13.0)	10.8 (9.0-12.9)	8.4 (7.7-9.0)
I store up things I don't need.	38.0(32.3-44.8)	41.2(36.8-46.1)	45.7(42.7-49.0)	43.9(42.7-45.1)
I do things other people think are strange.	46.5(40.6-53.4)	46.0(41.5-51.1)	46.7(43.7-50.0)	38.4(37.3-39.6)
I have thoughts people would think are strange.	43.6(37.7-50.3)	46.5(41.9-51.5)	44.8(41.7-48.0)	32.8(31.7-33.9)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse.

Table 10: Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Attention Problems in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6

ATTENTION PROBLEMS	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
	Heavy	Binge	Light	No Use
I act young for my age.	27.6(22.5-33.7)	27.0(23.1-31.6)	32.9(30.0-36.0)	36.6(35.4-37.7)
I have trouble concentrating.	62.1(56.2-68.7)	64.6(60.2-69.4)	63.0(60.0-66.1)	49.5(48.3-50.7)
I feel confused or in a fog.	35.7(30.1-42.4)	35.5(31.2-40.4)	33.4(30.5-36.5)	22.4(21.4-23.4)
I daydream a lot.	61.4(55.5-67.9)	65.1(60.7-69.8)	62.6(59.6-65.7)	51.7(50.6-52.9)
I act without stopping to think.	57.2(51.2-63.9)	52.3(47.7-57.3)	52.8(49.7-56.0)	42.4(41.3-43.6)
I am nervous or tense.	46.6(40.7-53.5)	44.0(39.5-49.1)	44.6(41.5-47.8)	38.7(37.6-39.9)
My school work is poor.	49.2(43.2-56.0)	44.7(40.2-49.8)	41.2(38.2-44.5)	27.5(26.5-28.6)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 11: Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Delinquent Behavior in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6

DELINQUENT BEHAVIOR	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
	Heavy	Binge	Light	No Use
I don't feel guilty after doing something I shouldn't.	50.0(44.0-56.8)	43.1(38.6-48.1)	40.3(37.4-43.6)	31.8(30.7-32.9)
I hang around with kids who get in trouble.	63.8(57.9-70.2)	56.7(52.2-61.7)	49.5(46.4-52.7)	31.5(30.4-32.6)
I lie or cheat.	42.8(36.9-49.6)	40.2(35.8-45.2)	37.9(35.0-41.2)	24.6(23.7-25.7)
I prefer to be with older kids.	59.3(53.3-66.0)	61.7(57.2-66.6)	64.8(61.8-67.9)	47.5(46.4-48.7)
I run away from home.	18.1(13.7-24.0)	9.7 (7.5-12.6)	8.4 (6.8-10.4)	3.7 (3.3-4.2)
I set fires.	13.3 (9.2-19.2)	9.2 (7.0-12.3)	9.4 (7.6-11.6)	5.4 (4.9-6.0)
I steal at home.	11.8 (8.2-17.0)	10.0 (7.6-13.2)	9.0 (7.2-11.1)	4.6 (4.2-5.2)
I steal from places other than home.	24.3(19.3-30.6)	18.3(15.1-22.2)	15.3(13.1-17.8)	6.1 (5.6-6.7)
I cut classes or skip school.	54.7(48.8-61.5)	40.8(36.4-45.8)	29.3(26.5-32.3)	9.9 (9.3-10.6)
I use alcohol or drugs for non-medical purposes.	69.4(63.9-75.3)	62.2(57.7-67.1)	39.8(36.8-43.1)	6.4 (5.9-7.0)
I swear or use dirty language.	91.2(88.2-94.4)	88.7(85.9-91.5)	83.0(80.8-85.3)	52.8(51.6-53.9)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 12: **Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Aggressive Behavior in the Past 6 Months by Pattern of Alcohol Use in Past Month, 1994-6**

AGGRESSIVE BEHAVIOR	Pattern of Alcohol Use Percent saying "somewhat true or very or often true"			
	Heavy	Binge	Light	No Use
I am mean to others.	42.2(36.4-49.0)	39.8(35.4-44.8)	40.3(37.3-43.5)	29.4(28.4-30.5)
I destroy my own things.	19.9(15.3-26.0)	16.6(13.5-20.5)	13.7(11.7-16.1)	9.9 (9.2-10.6)
I destroy things belonging to others.	18.5(14.1-24.1)	11.4 (8.9-14.7)	12.7(10.7-15.1)	6.7 (6.1-7.3)
I disobey at school.	49.6(43.7-56.4)	48.9(44.3-53.9)	39.4(36.4-42.6)	23.6(22.7-24.6)
I get in many fights.	35.0(29.3-41.7)	24.5(20.6-29.1)	19.9(17.6-22.6)	13.1(12.4-13.9)
I physically attack people.	21.5(16.9-27.3)	14.8(11.9-18.4)	12.0(10.1-14.3)	6.5 (5.9-7.1)
I scream a lot.	25.5(20.4-31.8)	21.7(18.1-26.2)	23.3(20.8-26.2)	16.5(15.7-17.4)
I am stubborn.	64.2(58.3-70.6)	70.9(66.7-75.4)	61.9(58.9-65.0)	49.7(48.6-50.9)
My moods or feelings change suddenly.	54.1(48.1-60.9)	56.7(52.1-61.6)	56.0(52.9-59.2)	43.5(42.3-44.6)
I tease others a lot.	49.3(43.3-56.1)	43.2(38.7-48.3)	43.5(40.4-46.7)	31.4(30.3-32.5)
I have a hot temper.	63.3(57.4-69.7)	62.9(58.4-67.7)	59.7(56.7-62.9)	42.6(41.5-43.8)
I threaten to hurt people.	38.8(33.0-45.6)	25.5(21.6-30.2)	22.5(20.0-25.4)	12.3(11.6-13.1)

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 13: Percentage and 95% Confidence Interval for Adolescents Age 12-17 Reporting Criminal Behavior in the Past Year by Pattern of Alcohol Use in Past Month, 1995-6

Pattern of Alcohol Use PAST YEAR CRIMINAL BEHAVIORS	Heavy	Binge	Light	No Use
Got into a physical fight [1]	46.5 (36.2-59.8)	37.3 (30.0-46.4)	29.5 (24.9-35.0)	15.2 (13.8-16.7)
Took something from a store without paying [1]	33.2 (23.7-46.4)	27.3 (20.9-35.7)	20.9 (16.7-26.1)	7.7 (6.6-8.9)
Purposely damaged or destroyed property that did not belong to me [1]	32.8 (23.5-45.8)	19.5 (14.1-27.1)	16.2 (12.4-21.0)	6.5 (5.5-7.7)
Drove under the influence of alcohol [2]	32.0 (25.3-40.4)	16.2 (12.5-21.0)	6.3 (4.7-8.5)	0.7 (0.5-1.1)
Sold illegal drugs [1]	21.7 (14.0-33.5)	10.6 (6.5-17.1)	3.8 (2.3-6.4)	1.2 (0.8-1.8)
On Probation at any time in the past year [2]	19.0 (13.9-25.9)	6.8 (4.6-10.2)	4.9)3.3-7.2)	1.5 (1.2-1.9)
Drove under the influence of illegal drugs [2]	18.4 (13.3-25.4)	12.4 (9.0-16.9)	5.2 (3.7-7.4)	0.6 (0.4-0.9)
Ever arrested /booked for breaking the law [2]	27.7 (19.4-39.7)	17.3 (12.2-24.6)	9.9 (7.0-14.0)	3.7 (3.0-4.6)

1 1995 only
2 1995 and 1996

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

Table 14: Relative Likelihood and 95% Confidence Interval for Adolescents Age 12-17 Reporting Emotional and Behavioral Problems in the Past 6 Months and Past Year Criminal Behaviors, Controlling for Socio-demographic Characteristics and Past Month Pattern of Alcohol and Marijuana Use, 1994-6

	Pattern of Alcohol Use*		
	Heavy	**Binge**	**Light**
Withdrawal complaints	4.3 (1.2-15.7)	1.6 (0.6-4.5)	1.6 (.9-2.8)
Somatic complaints	2.3 (0.7-7.5)	0.5 (0.2-1.3)	0.9 (0.6-1.5)
Anxiety/depression	2.7 (0.7-10.0)	0.9 (0.4-2.1)	1.7 (1.0-2.8)
Social problems	2.2 (0.9-5.4)	2.4 (1.1-5.5)	2.4 (1.6-3.6)
Thought problems	2.6 (1.4-3.3)	1.6 (0.8-3.1)	2.2 (1.4-3.3)
Attention problems	3.3 (1.3-8.4)	1.1 (0.6-2.3)	1.5 (1.0-2.4)
Delinquent behavior	5.1 (3.7-7.0)	3.6 (2.8-4.7)	2.7 (2.3-3.3)
Aggressive behavior	3.5 (1.3-9.2)	3.2 (2.8-5.6)	2.8 (1.9-4.2)
In past year:			
Got into a physical fight [1]	2.7 (1.5-4.8)	2.3 (1.5-3.7)	2.1 (1.6-2.7)
Took something from store without paying [1]	2.4 (1.3-4.3)	2.2 (1.4-3.5)	2.3 (1.6-3.1)
Purposely damaged or destroyed property that did not belong to me [1]	3.2 (1.8-5.6)	1.8 (1.0-3.2)	2.2 (1.5-3.2)
Drove under the influence of alcohol [2]	21.3 (11.5-38.9)	8.9 (5.3-4.8)	4.7 (2.9-7.7)
Sold illegal drugs [1]	3.3 (0.9-11.8)	1.8 (0.6-5.8)	1.1 (0.5-2.7)
On probation [2]	4.4 (2.1-9.2)	1.5 (0.8-2.8)	2.0 (1.1-3.9)
Drove under influence of illegal drugs [2]	3.5 (1.7-7.3)	2.8 (1.5-5.3)	2.6 (1.4-4.7)
Ever arrested/booked for breaking the law	3.7 (1.8-7.7)	2.3 (1.3-4.1)	2.0 (1.2-2.4)

* Reference group is past month non-drinkers.

1 1995 only

2 1995 and 1996

Note: The relative likelihoods were estimated using logistic regression analysis. The relative likelihood or odds ratio for each Youth Checklist psycho-social category measures the likelihood of past month alcohol and marijuana users versus non-users having clinically significant levels of functional, cognitive, or emotional problems. The logistic regression models control for gender, age, having moved in the past month, family structure, region, population density, family income, and race/ethnicity. An adjusted odds ratio of 4.3 for past month heavy alcohol drinkers means that, after statistically controlling for demographic characteristics and past month marijuana use, heavy alcohol drinkers were 4.3 times more likely than non-drinkers to fall in the "clinical" range for withdrawal complaints in the past 6 months.

Source: Office of Applied Studies, SAMHSA, National Household Survey on Drug Abuse

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